Military Applications & Requirements for Air-Acoustics

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Potential Military Applications

Applications:

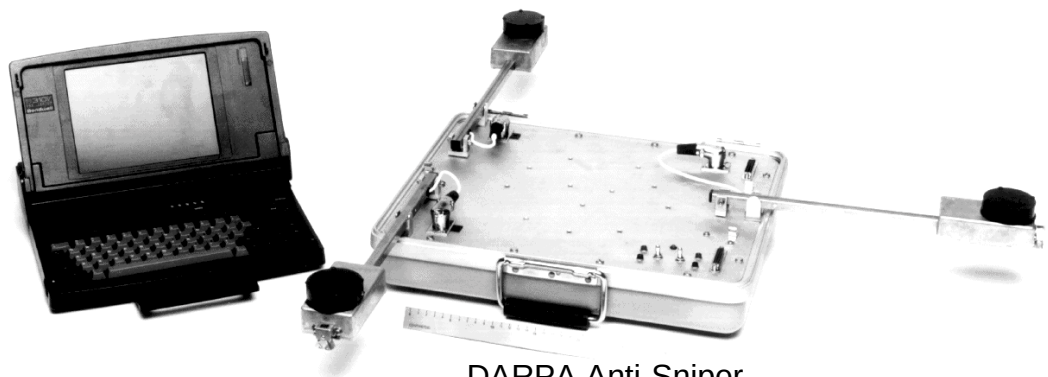
- Situation Awareness
- Cueing & Targeting
- Land Mine Alternatives

Platforms:

- Vehicle-Mounted
- Unattended Ground Sensors
- Man-Portable

NVL Hunter Sensor Suite

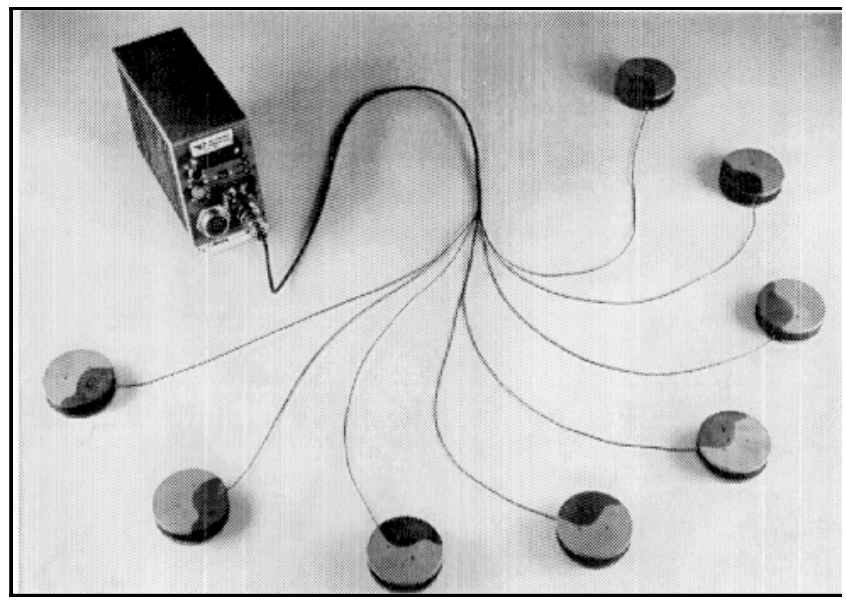
DARPA MIUGS
ARL Distributed Sensor Networks



DARPA Anti-Sniper
NSWC MANPADS

Typical Transducer Requirements

Requirement	Value
Type of response	Pressure
Frequency range	7-500 Hz
Equivalent self-noise	50-20log(f) dB//1Hz
Equivalent accler. sens.	$64/f$ Pa/ms^{-2}
Pressure tolerance	0-2 atm.
Operation temperature	-40 - 60 ºC
Immersion tolerance	1 m
Nonlinearities	-85dB
Amplitude stability	$0.1f$ %
Phase stability	$0.06f$ º
Maximum operating SPL	120dB



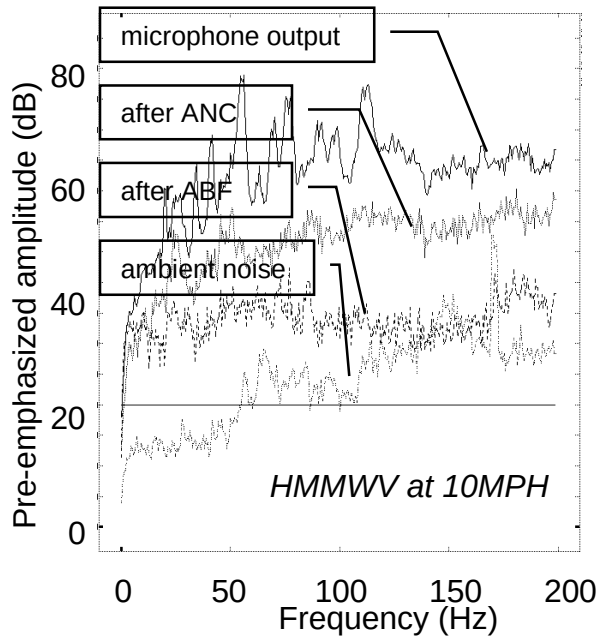
Adaptive Noise Cancellation Challenges

Platform Self-Noise

- more microphones
- ANC algorithms with more accurate transfer function models

Wind Noise

- adaptive algorithms
- multi-microphone windscreens



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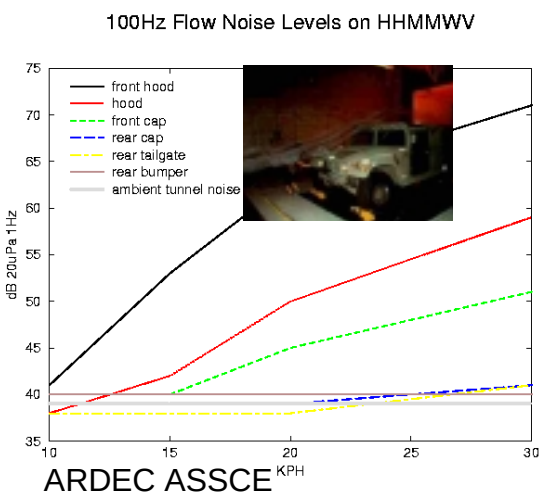

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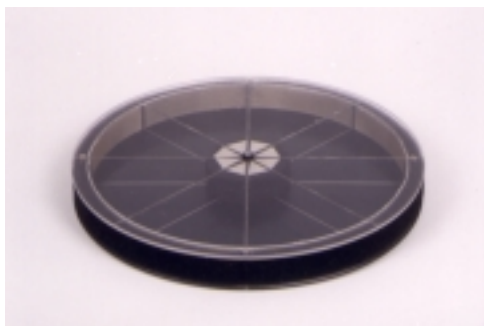

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